

CLONCURRY'S CAVE HILL DAM

WILL TRANSFORM NORTH-WEST QUEENSLAND

A new water storage on the Cloncurry River, near the town of Cloncurry, is poised to change the socio-economic fabric of north-west Queensland.



A KEY PROJECT TO DEVELOP NORTHERN
AUSTRALIA'S IRRIGATION POTENTIAL

CLONCURRY'S CAVE HILL DAM

VIBE OF EXCITEMENT FOR INVESTORS AND IRRIGATORS

- The construction of a new, large dam is the linchpin for unlocking the high-yield potential of the vast fertile black-soil plains near Cloncurry.
- A flourishing irrigation industry will leverage associated services industries and processing infrastructure and generate value-adding opportunities for agricultural sectors, including the use of cotton seed to feed livestock on cattle grazing enterprises.
- This, in turn, will support economic growth and diversification, and critically contribute to the future social prosperity of the region.
- The new dam will increase the combined water delivery ability of storages in the Mount Isa—Cloncurry Region by over 60%.
- Adding a significant water storage on the Cloncurry River will provide geographical diversification of water capture and consequently help drought-proof the region into a more volatile climate future.
- The dam will also
 - provide high-reliability water for new mines in the vicinity of Cloncurry;
 - guarantee water security for urban and industrial water users right across the Cloncurry - Mount Isa region in a climate-challenged future; and
 - become a great place for locals and tourists to recreate and do water sports.



The 2013 Agricultural Resource Assessment for the Flinders River Catchment, by CSIRO, identified Cave Hill Dam as key opportunity to realise the extensive irrigated agriculture potential in the Cloncurry Shire.

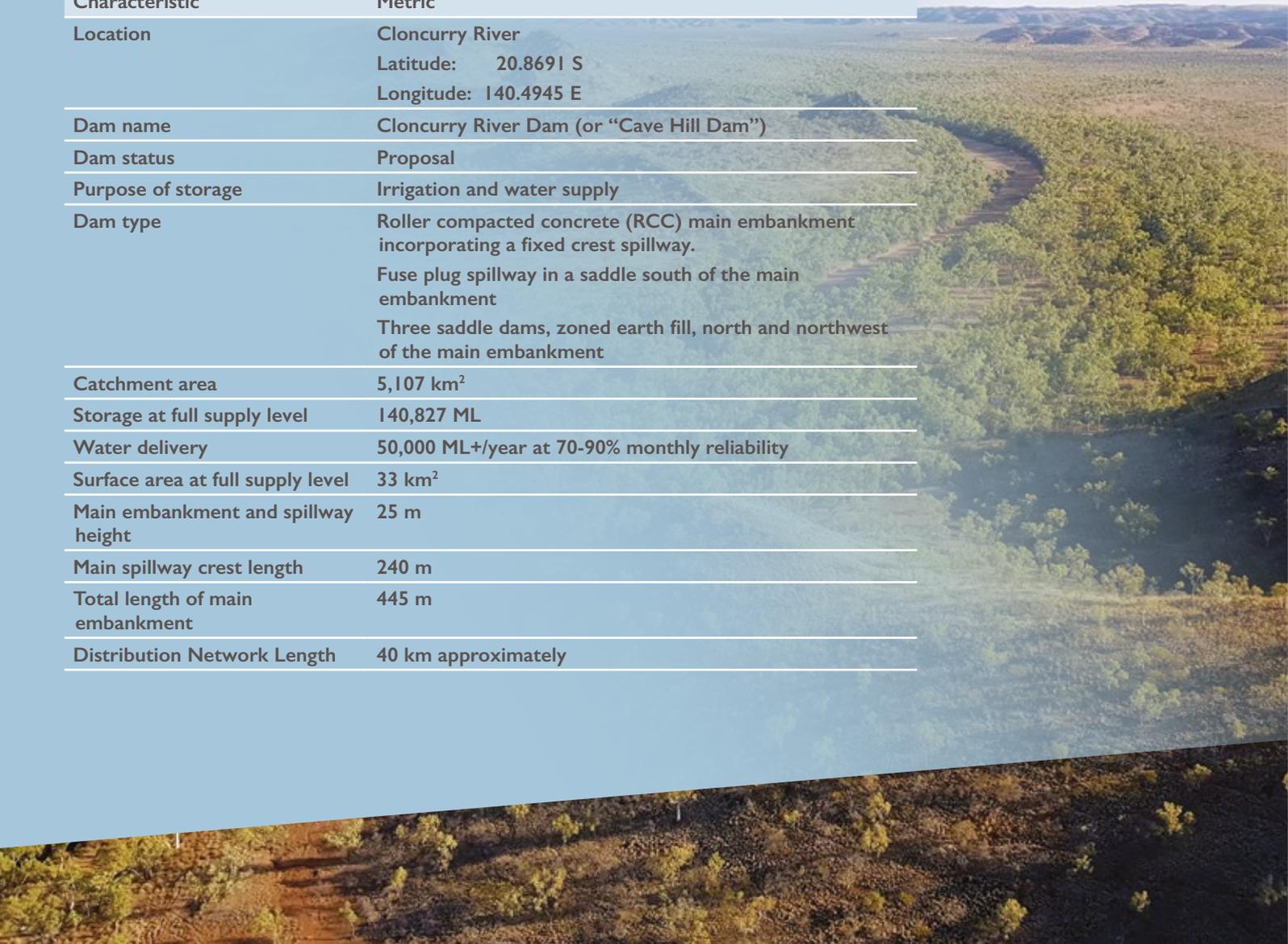
“In the absence of reliable water there will not be the economies of scale to develop an irrigation industry and the supporting processing infrastructure such as a cotton gin and other value adding opportunities such as cotton seed for cattle feed”. (Jacobs 2018)



DAM AND IRRIGATION INFRASTRUCTURE

The Cloncurry River Dam will be located 20 km south of Cloncurry. The dam wall will stand approximately 25 metres high at a site known as “Cave Hill” on Roxmere Station. The dam can store approximately 140,000 mega litres (ML) water—equivalent in size to about 56,000 Olympic-size swimming pools. It will be able to deliver approximately 50,000 ML/year with high reliability. The water will be delivered via pipeline to an area 40 km north of the dam (downstream) where black soil suitable for cropping is available.

Characteristic	Metric
Location	Cloncurry River Latitude: 20.8691 S Longitude: 140.4945 E
Dam name	Cloncurry River Dam (or “Cave Hill Dam”)
Dam status	Proposal
Purpose of storage	Irrigation and water supply
Dam type	Roller compacted concrete (RCC) main embankment incorporating a fixed crest spillway. Fuse plug spillway in a saddle south of the main embankment Three saddle dams, zoned earth fill, north and northwest of the main embankment
Catchment area	5,107 km ²
Storage at full supply level	140,827 ML
Water delivery	50,000 ML+/year at 70-90% monthly reliability
Surface area at full supply level	33 km ²
Main embankment and spillway height	25 m
Main spillway crest length	240 m
Total length of main embankment	445 m
Distribution Network Length	40 km approximately





REALISING THE PROJECT

The Cave Hill Dam is located a short distance upstream from Cloncurry. To ensure the dam is safe, it has been engineered to have a flood capacity equivalent to the largest rainfall event expected in the catchment above the dam. This means the dam wall is higher and stronger than would be required for a dam of a similar capacity in a low-risk location and this is reflected in the estimated cost for construction.

The raw capital cost estimate for the project according to the Detailed Business Plan is \$459.3 million and operating costs are estimated to be \$2.4 million per year.

Assuming cotton is produced across the entire irrigation area, estimated annual production value is \$14.2 million. Emerging alternative crops can increase production value and project viability.

The project is viable either

- as an irrigation-only dam where government contributes a non-repayable capital grant; or
- if there is major new demand from the urban, mining and mineral processing sectors, which can pay higher water charges—for higher security water—compared to agriculture.

Climate change effects are likely to increase the benefits of proceeding with the project.

Established quarries and a concreting plant are nearby and there is demonstrated regional construction capacity.

To proceed with the project will also require a number of government approvals before construction can commence.

- The project will need to be referred to the Australian Government for determination whether it is a controlled action under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). An Environmental Impact Statement (EIS) will need to be prepared. The EIS will involve several large-scale detailed studies to anticipate all environmental flow, water quality and flora and fauna impacts.
- A Cultural Heritage Management Plan will also need to be developed and approved. This will involve conducting an extensive cultural heritage survey and consulting with the Mitakoodi Mayi Traditional Owners. A Native Title determination over an area including the dam site is pending and, if Native Title is found to exist, a formal agreement with the Native Title holders needs to be negotiated.
- Agreement will need to be secured from DNRME that under the Gulf Water Plan enough water is available for the project and that downstream environmental flow requirements can be met before the project can proceed.

There is proven capacity within Australian construction companies to construct the Cloncurry River Dam and distribution pipeline, particularly in the medium to long term. If the project is to proceed, a 'design and construct contracting model' is recommended, depending on the expertise of the proponent and the prevailing market conditions at that time. This delivery model ideally combines the works for the dam and pipeline into a single package.



DIAGRAM Proposed Cave Hill Dam on the Cloncurry River

Jacobs 2018 Cloncurry River Dam study includes a detailed design for a proposed Dam on the Cloncurry River.

PHOTO Cloncurry River bed and proposed location of the Cave Hill Dam



During 2017-2019, the Mount Isa to Townsville Economic Zone (Inc) completed a preliminary and detailed business case for a water storage on the Cloncurry River. Funding was provided by the Australian Government through the Northern Australia Water Infrastructure Development Fund. JACOBS undertook both stages of the feasibility investigations.

In 2019, the Queensland Government released the North West Queensland Diversification Strategy which highlighted agriculture as one of the economic drivers for the North West. The Queensland Government has announced plans to invest substantial funding to assist Cloncurry Shire Council to undertake commercial cropping trials on the town common.

The State Government is supporting one of the key recommendations of the final business case to develop a demonstration farm to trial a range of crops suitable for the area. The demonstration farm is to be operated by an experienced irrigation farmer for approximately five years and will be provided with financial assistance and advice from Department of Agriculture and Fisheries (DAF) extension officers.

Regular field days will be conducted at the demonstration farm where interested landholders, investors and farmers can obtain information about cropping yields and the general results proving the commercial viability of farming in the North West.

Analysis by Coriolis identified sesame as a potential \$250 million industry for North West Queensland as well as mung beans and shea nut other high value crops.



BENEFITS OF THE CAVE HILL DAM

The Cloncurry River Dam project is a water infrastructure proposal that will boost economic activity in North West Queensland directly and indirectly. The new water storage will deliver sufficiently reliable and affordable water to achieve the economies of scale required for the development of a viable irrigation industry.

The irrigation area will generate an estimated \$14.2 million of irrigated agricultural production each year, assuming cotton is being grown, but other crops could be considered also. Irrigation will diversify agricultural activity and provide important value-adding opportunities for beef grazing enterprises also.

The project will generate an estimated 58 new local jobs in agriculture:

- 37 new jobs involved in agriculture; and
- 21 new jobs related to agriculture, including in support industries such as farm input suppliers (e.g. fertilizer, seedlings, pesticides, packaging and fuel) and services (e.g. transportation, refrigeration, mechanical services, food, accommodation and accountancy).

Construction, operation and maintenance of the project will create additional jobs:

- 396 construction jobs over 3 years; and
- 2 ongoing jobs to operate and maintain the dam and pipeline.

The project will further generate significant induced employment benefits in the Cloncurry region and could conceivably lead to diversifying the region's economy and further sustaining communities and population. It will also provide ready access water for emerging mines.

Crucially, the project will generate critical size of agricultural production. In doing so, it will galvanise the emergence of irrigated agriculture on land adjacent to the project area, where landholders already hold 155,000 ML water allocations for un-supplemented water under the Gulf Water Resources Plan but have so far been reluctant to venture into irrigation enterprises.

Unlike irrigation development on the east coast of Queensland, this scheme does not run the risk of impacting the Great Barrier Reef. It will add much-needed geographical diversity to irrigation agriculture in Queensland and reduce reliance on the Darling River irrigation areas.

Confidence in irrigated agriculture can be further boosted through trialling of crops, varieties and production methods locally. The Cloncurry Shire Council is already talking to the Queensland Department of Primary Industries and other partners about a research and demonstration cropping area at Cloncurry!

An additional water supply will add to water security and drought resilience of Cloncurry and also Mount Isa under expected climate change conditions, which are predicted to be hotter and drier.



For more information about the project, please contact:

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